UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/577,468	05/24/2000	Vivien W. Wong	REG 142-C	5396

7590 07/30/2002

Joseph M Sorrentino Ph D
Regeneron Pharmaceuticals Inc
777 Old Saw Mill River Road
Tarrytown, NY 10591

EXAMINER
HAYES, ROBERT CLINTON

ART UNIT	PAPER NUMBER
1647	

DATE MAILED: 07/30/2002 16

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.	Applicant(s)
09/577,468	Wong et al
Examiner	**Art Unit**
Robert C. Hayes, Ph.D.	1647

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *May 6, 2002* .

2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above, claim(s) *5, 13-17, and 19* is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1-4, 6-12, 18, and 20-22* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☒ Claims *1-22* are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☐ All b) ☐ Some* c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____
4) ☐ Interview Summary (PTO-413) Paper No(s). _____
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Restriction/Election

1. Applicant's election with traverse of Group I (claims 1-3, 4, 6-11, 12, 18 & 20-22, as it relates to using AX-15 to treat obesity or diabetes) in Paper No. 9 is acknowledged. The traversal is on the ground(s) that an undue search and examination burden would not be present because " a search of the literature for the methods of Group I would be nearly identical to the search performed for Groups II-V", and in order to "preserve unity". This is not found persuasive because, in contrast to Applicants' arguments this application is an US application, and not an international application, where "unity" is not an issue for consideration. Therefore, Applicants' arguments are moot on this point. Secondly, because each of the restricted methods requires physically and functionally distinct products, as illustrated by their unique SEQ ID Nos, and because different types of methods affecting different populations of cells are being claimed (as especially illustrated for Group V) which differ in the recited method objectives and method steps, the non-coextensiveness of the search and examination for each group would constitute an undue burden on the examiner to search and consider all the separable groups with their recognized divergent subject matter, for the reasons previously made of record. The requirement is still deemed proper and is therefore made FINAL.

Claims 5, 13-17, 19 and claims relates to administering AX-2 or CNTF are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected

inventions, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in Paper No. 9.

Priority

2. An application in which the benefits of an earlier application are desired must contain a specific reference to the prior application(s) in the first sentence of the specification or in an application data sheet (37 CFR 1.78(a)(2) and (a)(5)). However, amendment A (paper #5) is confusing. It is requested that the first paragraph be rewritten to clarify what priority is being claimed; especially as it relates to all claimed priority applications recited in the oath/declaration.

Double Patenting

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321© may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-4, 6-12, 18 & 20-22 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-4, 7 & 11 of copending Application No. 09/454380. Although the conflicting claims are not identical, they are not patentably distinct from each other because each application recites overlapping methods of treating diabetes in humans through administering AX-15.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 101

4. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim 6 & 8-12 are rejected under 35 U.S.C. 101 because the claimed invention is not supported by either a credible asserted utility or a well established utility.

While the specification asserts a specific and substantial utility for the instant invention (e.g., page 14 of the specification), "*preventing* the occurrence of gestational or adult onset diabetes in a human..." is not credible, because no cure nor "prevention" of "gestational or adult onset diabetes" is known in the art at the time of filing Applicants' invention. Therefore, given the broadest reasonable interpretation consistent with that disclosed within the specification for

the recitation, "*preventing*...of gestational or adult onset diabetes", which is further not normally diagnosed until after-the-fact, has no credible utility.

Applicant is directed toward the Revised Interim Utility Guidelines, Federal Register, Vol.64, No.244, pages 71427-71440, Tuesday December 21, 1999.

Claim Rejections - 35 U.S.C. § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The following is a quotation of the first paragraph of 35 U.S.C. 112:
> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 6 & 8-12 are also rejected under 35 U.S.C. 112, first paragraph. Specifically, since the claimed invention is not supported by either a credible asserted utility or a well established utility for the reasons set forth above, one skilled in the art clearly would not know how to use the claimed invention.

6. Claims 1-4, 6-12, 18 & 20-22 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a method of reducing body weight/fat and food intake in obese mammals while attenuating obesity associated hyperinsulinemia/ reducing diet-restricted plasma insulin levels following administration of the modified human ciliary neurotrophic factor of SEQ ID NO:1 further consisting of C17A, Q63R, ΔC15 (i.e., Ax-15 of

SEQ ID NO: 16 or 17), does not reasonably provide enablement for the treatment of diabetes in general. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to use the invention commensurate in scope with these claims.

The specification merely mentions the terms, "diabetes", "gestational or adult onset diabetes", and "obesity of genetically determined origin" (i.e., pages 5 & 14 of the specification). The sole working examples disclosed within the specification are limited to murine models for diet-induced obesity using specific strains of obese mice (i.e., *ob/ob* and AKR/J; pages 26-30 of the specification). No models for (a) Type I, insulin-dependent diabetes, (b) Type II, non-insulin dependent diabetes, (c) gestational diabetes, nor (d) any human "obesity of genetically determined origin" are described. In contrast, type I diabetes is characterized by destruction of pancreatic β-islet cells brought on by either an autoimmune reaction or by some other unknown etiology. In contrast, adult onset/type II diabetes is characterized by a combination of decreased insulin secretion and decreased insulin sensitivity/insulin resistance. In contrast, the etiology for gestational diabetes is unknown at the time of filing the instant invention, and further not described within the instant specification. In other words, no common mechanism exists for causing diet-induced obesity, "obesity of genetically determined origin", or for causing any of the three different forms of diabetes recited in the claims. Moreover, one skilled in the art would not expect Ax-15 to replace insulin in the treatment of diabetes because they do not bind the same

cellular receptor, and therefore, would not reasonably produce the same physiological response in insulin-responsive tissues.

The specification also fails to teach at what times and under what conditions or under what physiological parameters Ax-15 can be used to prevent, or effectively treat, any diabetic condition, including non-insulin dependent/type II diabetes mellitus or gestational diabetes. Therefore, the claims are not reasonably commensurate in scope with the paucity of guidance provided within the specification and the unpredictable state of the art for knowing how to treat "obesity of genetically determined origin" (since no genetically determine origin is known in the art, nor described in the specification), gestational diabetes or diabetes in general by merely reducing body weight/fat, food intake, or by attenuating obesity associated hyperinsulinemia/ reduce diet-restricted plasma insulin levels; thereby, requiring undue experimentation to discover such for these different and distinct disease states. Lastly, in that no cures (i.e., as it relates to claim 6) are known nor described for "preventing" the "occurrence of gestational or adult onset diabetes", it would also reasonably require undue experimentation to discover such at the time of filing Applicants' invention.

7. Claims 1-4, 6-12, 18 & 20-22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The elected invention is directed to using AX-15. However, as illustrated by SEQ ID Nos: 16 & 17, the presence or absence of a methionine residue results in a different numbering of amino acid position; thereby, making it ambiguous as to what metes and bounds the acronym, Ax-15 as alternatively defined on pages 9 and 13 of the specification, actually entails. It is suggested that amending the claims to Ax-15 of SEQ ID NO:15 or 16 would obviate this rejection.

8. Claim 20 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

It is ambiguous how administration of Ax-15 to "the eye" would treat obesity or diabetes, as currently claimed.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless -
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
> (f) he did not himself invent the subject matter sought to be patented.

Claim 1-4, 6-7, 9-12, 18 & 20-21 are rejected under 35 U.S.C. 102(b) as being anticipated Cilberto et al (WO 98/22128).

Cilberto et al teach administration of ciliary neurotrophic factor proteins (CNTF and "mutants thereof"; pgs. 2 & 3) intranasally, bronchially/intratracheally and orally in order to treat disorders, such as type II/adult onset diabetes and obesity (e.g., pages 1-5 & abstract; as it relates to claims 1-3, 6-7, 9-11, 18 & 21), in which body weight, hyperglycemia and hyperinsulinemia associated with obesity were reduced (e.g., see pages 9-15). Note that because the recitation of Ax-15, alone, meets the limitations of being a mutated form of human CNTF protein, where no distinguishing structural characteristics are currently claimed (e.g., by SEQ ID NO), the limitations of claims 1, 4 & 12 are met. Lasty, in that the administration method step recited in claim 6 is the same as Cilberto, the limitations of claim 6 would inherently also be anticipated; absent evidence to the contrary.

10. Claims 1-4, 6-12, 18 & 20-22 are rejected under 35 U.S.C. 102(f) because the applicant did not invent the claimed subject matter.

In particular, the three inventors of the instant application are entirely different from the three inventors in Application No.09/454,380, who also claim treating obesity and diabetes with Ax-15, in which the same assignee submitted both applications; thereby, placing in doubt who actually invented the instant invention.

Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner Robert Hayes whose telephone number is (703) 305-3132. The examiner can normally be reached on Monday through Thursday, and alternate Fridays, from 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Kunz, can be reached on (703) 308-4623. The fax phone number for this Group is (703) 308-4242.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0196.

Robert C. Hayes, Ph.D.
July 24, 2002

GARY L. KUNZ
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1600